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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/079,517	02/22/2002	Minh Van Ngo	50432-234	6429

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600 13th Street, N.W.
Washington, DC 20005-3096

EXAMINER

WYSZOMIERSKI, GEORGE P

ART UNIT	PAPER NUMBER
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1742

DATE MAILED: 09/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/079,517

Applicant(s)

NGO, MINH VAN

Examiner

George P Wyszomierski

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 June 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,8,9,13 and 14 is/are rejected.
- 7) ☒ Claim(s) 2-7 and 10-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claim 1 is rejected under 35 U.S.C. 102(e) as being clearly anticipated by Lee et al. (U.S. Patent 6,429,049), particularly column 4, lines 1-4 therein.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al.

The Lee patent discloses in general a process of making vias for semiconductor packaging including a step of exposing a copper oxide surface to a laser beam to remove oxide until a copper surface is exposed. More specifically, Lee column 4, lines 49-62 appear to disclose a process in accord with the present claims. While Lee does not specify the dielectric constant of the insulating layer in the prior art, this would appear to be a material property of a given substance. Because the actual substances used in the prior art and the claimed invention

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may be the same, the process as claimed would fall within the purview of what is described by Lee et al.

Consequently, a prima facie case of obviousness is established between the disclosure of Lee et al. and the process as presently claimed.

5. In a response filed June 9, 2003, Applicant alleges that the present invention can be distinguished from Lee in that the instant claims require "forming a wafer containing inlaid copper". In response, the examiner submits that a "wafer" involves nothing more than a thin flat layer, and that drawing feature 212 on Figure 8 of Lee discloses a wafer. Drawing feature 212a of Lee would in this case be the inlaid copper. Thus, no patentable distinction is seen between the disclosure of Lee et al. and the claimed invention.

6. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee et al. in view of Pramanick et al. (U.S Patent 6,143,650). This is a new ground of rejection.

The Lee et al. patent does not specify the temperature and time as recited in the instant claims. Claims 10 and 11 of Pramanick et al. indicate the presently claimed temperature and time to be conventionally used in the art of laser annealing of copper layers. Thus, to practice the Lee et al. process under the parameters as defined in the instant claims would have been considered an obvious expedient to one of ordinary skill in the art, given the disclosure of Pramanick et al.

7. In the June 9, 2003 response, Applicant stated that the examiner's previous rejection of these claims based on Lee et al. alone provided no facts upon which to predicate the conclusion


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that one having ordinary skill in the art would have been realistically motivated to arrive at the parameters as defined in claims 8 and 9. The examiner believes that the above-cited Pramanick disclosure remedies any deficiencies which may be present in the Lee patent with regard to instant claims 8 and 9.

8. Claims 2-7 and 10-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to George Wyszomierski whose telephone number is (703) 308-2531. The examiner can normally be reached on Monday thru Friday from 8:00 a.m. to 4:30 p.m. Eastern time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King, can be reached on (703) 308-1146. The fax phone number for this Group is (703) 872-9310 for all correspondence except for After Final amendments in which case the Fax number is (703) 872-9311. The Right fax number for this examiner is (703) 872-9039. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0661.



GEORGE WYSZOMIERSKI
PRIMARY EXAMINER

GPW
August 22, 2003